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325.01 General

This *Design Manual* provides guidance for three levels of design for highway projects: the basic, modified, and full design levels. The design matrices in this chapter are used to identify the design level(s) for a project and the associated processes for allowing design variances. The matrices address the majority of preservation and improvement projects and focus on those design elements that are of greatest concern in project development.

The design matrices are five tables that are identified by route type. Two of the matrices apply to Interstate highways. The other three matrices apply to non-Interstate highways and address preservation and improvement projects.

A design matrix is used to determine the design level for the Design Elements of a project. Apply the appropriate design levels and document the design decisions as required by this chapter and Chapter 330.

325.02 Selecting a Design Matrix

Selection of a design matrix is based on highway system (Interstate, NHS excluding Interstate, and non-NHS) and location (main line, interchange). (See Figure 325-1.)

Highway System	Location	
	Main Line	Interchange Area
Interstate	Matrix 1	Matrix 2
NHS(1)	Matrix 3	Matrix 4
Non-NHS	Matrix 5	Matrix 4

(1) Except Interstate.

Design Matrix Selection Guide

Figure 325-1

The **Interstate System** (Matrices 1 and 2) is a network of routes selected by the state and the FHWA under terms of the federal aid acts. These routes are principal arterials that are the most important to the economic welfare and defense of the United States. They connect, as directly as practicable:

- Principal metropolitan areas and cities.
- Industrial centers.
- International border crossings.

The Interstate System also includes important routes into, through, and around urban areas, serves the national defense, and, where possible, connects with routes of continental importance. It serves international and interstate travel and military movements.

The Interstate System is represented on the list of NHS highways, Figures 325-2a and 2b, with the letter “I” before the route number.

The **National Highway System (NHS)** (Matrices 3 and 4) is an interconnected system of principal arterial routes and highways (including toll facilities) that serve:

- Major population centers.
- International border crossings.
- Industrial centers.
- Ports.
- Airports.
- Public transportation facilities.
- Other intermodal transportation facilities.
- Other major travel destinations.

The NHS includes the Interstate System and the Strategic Highway Corridor Network (STRAHNET) and its highway connectors to major military installations (Interstate and non-Interstate).

The NHS meets national defense requirements and serves international, interstate, and interregional travel.

See Figures 325-2a and 2b.

The **Non-NHS** highways (Matrices 4 and 5) are state routes that form a network of highways that supplement the NHS system by providing for freight mobility and, mainly, regional and interregional travel. Non-NHS highways are not shown on Figures 325-2a and 2b. They are shown on WSDOT's (free) Official State Highway Map of Washington.

325.03 Using a Design Matrix

The design matrices are shown in Figures 325-3 through 325-7. Follow *Design Manual* guidance for all projects except as noted in the design matrices and elsewhere as applicable. The definitions presented in this chapter are meant to provide clarification for terminology used in the *Design Manual*. There is no assurance that these terms are used consistently in references outside of the *Design Manual*.

(1) Project Type

For project types not listed in the design matrices (such as unstable slopes), consult the Headquarters Design Office for guidance.

In the design matrices, row selection is based on Project Type. The Project Summary defines and describes the project. (Project Summary is discussed in Chapter 330.) For NHS and non-NHS routes (Matrices 3, 4, and 5), the project's program/subprogram might be sufficient information for identifying Project Type. See the *Programming Manual* for details about funding programs and subprograms.

The various sources of funds for these subprograms carry eligibility requirements that the designers and Project Development must identify and monitor throughout project development — this is especially important to ensure accuracy when writing agreements and to avoid delaying advertisement for bids if the Project Type changes.

Some projects involve work from several subprograms. In such cases, identify the various limits of the project that apply to each subprogram. Where the project limits overlap, apply the higher design level to the overlapping portion.

Project Types (in alphabetical order) are:

At Grade projects are safety improvements on NHS highways (45 mph or greater) to build grade separation facilities that replace the existing intersections.

Bike Routes (Shldrs) are main line economic development improvements to provide a statewide network of rural bicycle touring routes with shoulders a minimum of four feet wide.

Bike/Ped. Connectivity projects are mobility improvements to provide bicycle/pedestrian connections, along or across state highways within urban growth areas, to complete local networks.

Bridge Deck Rehabilitation projects are structures preservation, which repair delaminated bridge decks and add protective overlays that will provide a sound, smooth surface; prevent further corrosion of the reinforcing steel; and preserve operational and structural integrity.

Bridge Rail Upgrades are safety improvements to update older bridge rails to improve strength and redirection capabilities.

Bridge Repl. (Multilane) projects are non-NHS main line structures preservation that replace bridges on multilane highways to improve operational and structural capacity.

Bridge Replacement projects are NHS and two-lane non-NHS (main line and interchange) structures preservation that replace bridges to improve operational and structural capacity.

Bridge Restrictions projects are main line economic development improvements that remove vertical or load capacity restrictions to benefit the movement of commerce.

BST projects are non-NHS roadway preservation to do bituminous surface treatment (BST) work only, to protect the public investment.

BST Routes/Basic Safety projects are non-NHS roadway preservation to resurface highways at regular intervals and restore existing safety features to protect the public investment.

Corridor projects are main line improvements to reduce and prevent collisions (vehicular, nonmotorized, and pedestrian) within available resources.

Diamond Grinding is grinding a concrete pavement, using gang mounted diamond saw blades, to remove surface wear or joint faulting.

Dowel Bar Retrofit is reestablishing the load transfer efficiencies of the existing concrete joints and transverse cracks by cutting slots, placement of epoxy coated dowel bars, and placement of high-early strength, nonshrink concrete.

Four-Lane Trunk System projects are NHS economic development improvements to complete contiguous four-lane limited access facilities on a trunk system consisting of all Freight and Goods Transportation Routes (FGTS) with a classification of 10,000,000 tons/year.

Freight & Goods (Frost Free) projects are main line economic development improvements to reduce delay from weather related closures on high priority freight and goods highways.

Guardrail Upgrades are safety improvement projects limited to the specified roadside Design Elements. These projects focus on W beam with 12'-6" spacing and on guardrail systems with concrete posts. The length of need is examined and minor adjustments are made. Removal is an option if guardrail is no longer needed. For Interstate main line, address length of need as specified in Chapter 710. For non-interstate routes, additional length of more than 5% of the existing length is beyond the intent of this program. In these instances, consider funding in accordance with priority programming instructions, and if the length of need is not met, document to the Design Documentation Package (DDP), that the length of need is not addressed because it is beyond the intent of this program.

HMA/PCCP projects are non-NHS roadway preservation to resurface highways at regular intervals and restore existing safety features to protect the public investment.

HMA/PCCP/BST Overlays are NHS main line roadway preservation projects that resurface the existing surfaces at regular intervals to protect the public investment.

HMA/PCCP/BST Overlays Ramps are NHS and non-NHS ramp roadway preservation projects that resurface the existing surfaces at regular intervals and restore existing safety features to protect the public investment.

HMA Structural Overlays is a hot mix asphalt overlay that is placed to increase the load carrying ability of the pavement structure. Structural overlay thickness is greater than 0.15 ft.

HOV Bypass projects are NHS and non-NHS ramp mobility improvements to improve mobility within congested highway corridors by providing HOV bypass lanes on freeway ramps. Congested highway corridors have high congestion index values as described in the *Highway System Plan* (footnote in text for Improvement/Mobility).

HOV projects are main line mobility improvements completing the freeway Core HOV lane system in the Puget Sound region, and providing level of service C on HOV lanes (including business access transit lanes), within congested highway corridors.

Intersection projects are safety improvements to reduce and prevent collisions, to increase the safety of highways, and to improve pedestrian safety within available resources.

Median Barrier projects are limited safety improvement projects – mainly new median barrier with a focus on cable barrier to reduce median crossover accidents.

Milling with HMA Inlays is removal of a specified thickness of the existing HMA pavement, typically from the traveled lanes, and then overlaying with HMA at the same specified thickness.

New/Reconstruction includes the following types of work:

- Capacity changes: add a through lane, convert a general purpose (GP) lane to a special purpose lane (such as an HOV lane), or convert a high occupancy vehicle (HOV) lane to GP.
- Other lane changes: add or eliminate a collector-distributor or auxiliary lane. (A rural truck climbing lane that, for its entire length, meets the warrants in Chapter 1010 is not considered new/reconstruction.)
- Pavement reconstruction: full depth PCCP or HMA replacement.
- New interchange.
- Changes in interchange type such as diamond to directional or adding a ramp.
- New or replacement bridge (on or over, main line or interchange ramp).

Non-Interstate Freeway (mobility) projects, on non-NHS and NHS interchanges and on NHS main line, are mobility improvements on multilane divided highways, with limited access control, within congested highway corridors.

Non-Interstate Freeway (roadway preservation) projects, on non-NHS and NHS interchanges and on NHS main line, are roadway preservation to overlay or inlay with HMA/PCCP/BST on multilane divided highways, with limited access control, to minimize long-term costs and restore existing safety features.

Non-Interstate Freeway (safety) are NHS and non-NHS (main line and interchanges) safety improvements on multilane divided highways, with limited access control, to increase the safety within available resources.

Nonstructural Overlay is an HMA pavement overlay that is placed to minimize the aging effects and minor surface irregularities of the existing HMA pavement structure. The existing HMA pavement structure is not showing extensive signs of fatigue (longitudinal

or alligator cracking in the wheel paths). Nonstructural overlays are less than or equal to 0.15 ft thick, and frequently less than 0.12 ft thick.

PCCP Overlays are Portland cement concrete pavement overlay of an existing PCCP or HMA surface.

Preventive Maintenance includes roadway work such as pavement patching; restoration of drainage system; panel replacement; joint and shoulder repair; and bridge work such as crack sealing, joint repair, slope stabilization, seismic retrofit, scour countermeasures, and painting. Preventive maintenance projects must not degrade any existing safety or geometric aspects of the facility. Any elements that will be reconstructed as part of a preventative maintenance project are to be addressed in accordance with Full Design Level.

Replace HMA w/ PCCP at I/S (intersections) projects are NHS and non-NHS main line roadway preservation that restores existing safety features and replaces existing HMA intersection pavement that has reached the point of lowest lifecycle cost (11-15 years old) with PCCP that has about a 40 year life cycle.

Rest Areas (New) projects are NHS and non-NHS main line economic development and safety improvements to provide rest areas every 60 miles, and some RV dump stations.

Risk, Realignment projects are improvements intended to improve alignment at specific locations where the Risk program has identified a high probability of collisions/accidents.

Risk, Roadside projects are improvements intended to mitigate roadside conditions at specific locations where the Risk program has identified a high probability of vehicular encroachment.

Risk, Roadway Width projects are improvements intended to adjust the roadway width at specific locations where the Risk program has identified a high probability of a vehicle leaving its lane of travel.

Risk, Sight Distance projects are improvements intended to improve sight distance at specific locations where the Risk program has identified a high probability of collisions/accidents.

Rural projects are mobility improvements providing uncongested level of service on rural highways within congested highway corridors. (See HOV Bypass above for cross reference regarding “congested.”)

Urban (Multilane) projects are non-NHS mobility improvements within congested urban multilane highway corridors. (See HOV Bypass above for cross reference regarding “congested.”)

Urban projects are NHS and two-lane non-NHS (main line and interchange) mobility improvements within congested urban highway corridors. (See HOV Bypass above for cross reference regarding “congested.”)

(2) Design Elements

The column headings on a design matrix are **Design Elements**. Not all potential design elements have been included in the matrices.

The Design Elements that are included are based on the following thirteen FHWA controlling design criteria: design speed, lane width, shoulder width, bridge width, structural capacity, horizontal alignment, vertical alignment, grade, stopping sight distance, cross slope, superelevation, vertical clearance, and horizontal clearance. For the column headings, some of these controlling criteria have been combined (for example, design speed is part of horizontal and vertical alignment).

If using a design element that is not on the assigned matrix, use full design level as found elsewhere in this manual.

If using a design element that is not covered in this manual, use an approved manual or guidance on the subject and document the decision and the basis for the decision.

The following elements are shown on the design matrices. If the full design level applies, see the chapters listed below. If basic design level applies, see Chapter 410. If the modified design level applies, see Chapter 430.

Horizontal Alignment is the horizontal attributes of the roadway including horizontal curvature, superelevation, and stopping sight distance; all based on design speed. (See Chapter 620 for horizontal alignment, Chapter 642 for superelevation, Chapter 650 for stopping sight distance, and Chapters 440 or 940 for design speed.)

Vertical Alignment is the vertical attributes of the roadway including vertical curvature, profile grades, and stopping sight distance; all based on design speed. (See Chapter 630 for vertical alignment, Chapters 430, 440, 630, and 940 for grades, Chapters 430 and 650 for stopping sight distance, and Chapter 430, 440, or 940 for design speed.)

Lane Width is defined in Chapter 440. (See also Chapters 430, 640, 641, and 940.)

Shoulder Width is defined in Chapter 440. (See also Chapters 430, 640, and 940.) Also see Chapter 710 for shy distance requirements when barrier is present.

Lane Transitions (pavement transitions) are the rate and length of transition of changes in width of lanes. (See Chapter 620.)

On/Off Connection is the widened portion of pavement at the end of a ramp connecting to a main lane of a freeway. (See Chapter 940.)

Median Width is the distance between inside edge lines. (See Chapters 440 and 640.)

Cross Slope, Lane is the rate of elevation change across a lane. This element includes the algebraic difference in cross slope between adjacent lanes. (See Chapter 430 and Traveled Way Cross Slope in 640.)

Cross Slope, Shoulder is the rate of elevation change across a shoulder. (See Chapters 430 and 640.)

Fill/Ditch Slope is the downward slope from edge of shoulder to bottom of ditch or catch. (See Chapters 430 and 640.)

Access is the means of entering or leaving a public road, street, or highway with respect to abutting private property or another public road, street, or highway. (See Chapter 1420.)

Clear Zone is the total roadside border area, starting at the edge of the traveled way, available for use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a nonrecoverable slope, and/or a clear run-out area. (The median is part of a clear zone.) (See Chapter 700.)

Signing, Delineation, Illumination are signs, guide posts, pavement markings, and lighting. (See Chapter 820 for signing and 1120 for bridge signs, Chapter 830 for delineation, and Chapter 840 for illumination.)

Vertical Clearance - see Chapter 1120.

Basic Safety is the list of safety items in Chapter 410.

Bicycle and Pedestrian See Chapter 1020, Bicycle Facilities, and Chapter 1025, Pedestrian Design Considerations, for definitions.

Bridges: Lane Width is the width of a lane on a structure. (See Chapters 430, 440, 640, 641, 940, and 1120.)

Bridges: Shoulder Width is the distance between the edge of traveled way and the face of curb or barrier, whichever is less. (See Chapters 430, 440, 640, 940, and 1120.) Also see Chapter 710 for shy distance requirements.

Bridges/Roadway: Vertical Clearance is the minimum height between the roadway, including shoulder, and an overhead obstruction. (See Chapter 1120.)

Bridges: Structural Capacity is the load bearing ability of a structure. (See Chapter 1120.)

Intersections/Ramp Terminals: Turn Radii
See Chapter 910 for definition.

Intersections/Ramp Terminals: Angle
See Chapter 910 for definition.

Intersections/Ramp Terminals: Intersection Sight Distance See Chapters 910 and 940 for definitions.

Barriers: Terminals and Transition Sections

— **Terminals** are crashworthy end treatments for longitudinal barriers that are designed to reduce the potential for spearing, vaulting, rolling, or excessive deceleration of impacting vehicles from either direction of travel. Impact attenuators are considered terminals. Beam guardrail terminals include anchorage. — **Transition Sections** are sections of barriers used to produce a gradual stiffening of a flexible or semirigid barrier as it connects to a more rigid barrier or fixed object. (See Chapters 700, 710, and 720.)

Barriers: Standard Run are guardrail and other barriers as found in the *Standard Plans for Road Bridge and Municipal Construction* excluding terminals, transitions, attenuators, and bridge rails. (See Chapter 710.)

Barriers: Bridge Rail is barrier on a bridge excluding transitions. (See Chapter 710.)

(3) Design Level

In the non-Interstate matrices, design levels are noted in the cells by B, M, F, and sometimes with a number corresponding to a footnote on the matrix. For Improvement type projects full design level applies to all design elements except as noted in the design matrices and in other chapters as applicable. In the Interstate matrices, only full design level applies.

The design levels of basic, modified, and full (B, M, and F) were used to develop the design matrices. Each design level is based on the investment intended for the highway system and Project Type. (For example, the investment is higher for an Interstate overlay than for an overlay on a non-NHS route.)

A **blank cell** on a design matrix row signifies that the Design Element will not be addressed because it is beyond the scope of the typical project. In rare instances, a Design Element with a blank cell may be included if that element is linked to the original need that generated the project and is identified in the Project Summary or a Project Control Form.

Basic design level (B) preserves pavement structures, extends pavement service life, and maintains safe operations of the highway. See Chapter 410 for design guidance.

Modified design level (M) preserves and improves existing roadway geometrics, safety, and operational elements. See Chapter 430 for design guidance. Use full design level for design elements or portions of design elements that are not covered in Chapter 430.

Full design level (F) improves roadway geometrics, safety, and operational elements. See Chapter 440 and other applicable *Design Manual* chapters for design guidance.

(4) **Design Variances**

Types of design variances are design exceptions (DE), evaluate upgrades (EU), and deviations. See Chapter 330 concerning the Design Variance Inventory System (DVIS).

A **design exception (DE)** in a matrix cell indicates that WSDOT has determined that the Design Element is usually outside the scope of the Project Type. Therefore, an existing condition that does not meet or exceed the design level specified in the matrix may remain in place unless a need has been identified in the *Highway System Plan* and prioritized in accordance with the programming process. See Chapter 330 regarding documentation.

An **evaluate upgrade (EU)** in a matrix cell indicates that WSDOT has determined that the Design Element is an item of work that is to be considered for inclusion in the project. For an existing element that does not meet or exceed the specified design level, an analysis is required to determine the impacts and cost effectiveness of including the element in the project. The EU analysis must support the decision regarding whether or not to upgrade that element. See Chapter 330 regarding documentation.

A **deviation** is required when an existing or proposed Design Element differs from the specified design level for the project and neither DE nor EU processing is indicated. See Chapter 330 regarding documentation.

DE or EU with /F or /M in a cell means that the Design Element is to be analyzed with respect to the specified design level. For instance, a DE/F is analyzed with respect to full design level and might be recorded as having an existing Design Element that does not meet or exceed current full design level. An EU/M is analyzed to decide whether or not to upgrade any existing Design Element that does not meet or exceed current modified design level.

(5) **Terminology in Notes**

F/M Full for freeways/Modified for nonfreeway uses the word **freeway** to mean a divided highway facility that has a minimum of two lanes in each direction, for the exclusive use of traffic, and with full control of access. For matrix cells with an F/M designation, analyze freeway routes at full design level and nonfreeway routes at modified design level.

The **HAL, HAC, and PAL** mentioned in note (1) on Design Matrices 3, 4, and 5 are high accident locations (HAL), high accident corridors (HAC), and pedestrian accident locations (PAL).

The **Access Control Tracking System** mentioned in note (3) on Design Matrices 3, 4, and 5 is a list that is available on the web at <http://www.wsdot.wa.gov/eesc/design/access/> under the RELATED SITES heading. See Chapter 1420 for access control basics and 1430 and 1435 for limited and managed access, respectively.

The **corridor or project analysis** mentioned in notes (2) and (4) on Design Matrices 3, 4, and 5 is the justification needed to support a change in design level from the indicated design level. The first step is to check for recommendations for future improvements in an approved Route Development Plan. If none are available, an analysis can be based on route continuity and other existing features. See Chapter 330 regarding documentation.

Note (21) **Analyses required** appears only on Design Elements for Risk projects on Design Matrices 3, 4, and 5. These Design Elements are to be evaluated using benefit/cost (B/C) to compare and rank each occurrence of the Design Elements. The B/C evaluation supports engineering decisions regarding which proposed solutions are included in a Risk project.

Most components of a Risk project will have a B/C of 1.0 or greater. Proposed solutions with a B/C ratio less than 1.0 may be included in the project based on engineering judgment of their significant contribution to corridor continuity. Risk program size, purpose and need, or project prioritization may lead to instances where design elements with a ratio greater than 1.0 are excluded from a project. The analysis, design decisions and program funding decisions are to be documented in the Design Documentation Package. Decisions regarding which design elements to include in a project are authorized at the WSDOT region level.

State Route	NHS Route Description	Beginning SR MP	Begin ARM	Ending SR MP	End ARM
US 2	I-5 to Idaho State Line	0.00	0.00	334.51	326.64
US 2 Couplet	Everett Couplet	0.00	0.00	1.64	0.87
US 2 Couplet	Brown Street Couplet	287.45	0.00	288.08	0.63
US 2 Couplet	Division Street Couplet	289.19	0.00	290.72	1.53
SR 3	US 101 to SR 104	0.00	0.00	60.02	59.81
SR 4	US 101 to I-5	0.00	0.00	62.28	62.27
I-5	Oregon State Line to Canadian Border	0.00	0.00	276.56	276.62
SR 8	US 12 to US 101	0.00	0.00	20.67	20.67
SR 9	SR 546 to Canadian Border	93.61	93.52	98.17	98.08
SR 9 Spur	Sumas Spur	98.00	0.00	98.25	0.24
SR 11	I-5 to Alaskan Ferry Terminal	19.93	19.93	21.28	21.28
US 12	US 101 to Idaho State Line	0.00	0.00	434.19	430.76
US 12 Couplet	Aberdeen Couplet	0.33	0.00	0.68	0.35
SR 14	I-5 to US 97	0.00	0.00	101.02	100.93
SR 14 Spur	Maryhill Spur	100.66	0.00	101.05	0.39
SR 16	I-5 to SR 3	0.00	0.00	29.19	27.01
SR 16 Spur	SR 16 to SR 3	28.74	0.00	29.13	0.39
SR 17	US 395 to I-90	7.43	0.00	50.89	43.40
SR 18	So. Federal Way Park & Ride to I-5	2.20B	0.00	0.00	0.53
SR 18	I-5 to I-90	0.00	0.53	27.91	28.41
SR 20	US 101 to I-5	0.00	0.00	59.54	59.49
SR 20 Spur	SR 20 to San Juan Ferry	47.89	0.00	55.67	7.78
SR 22	US 97 to I-82	0.70	0.00	4.00	3.31
SR 26	I-90 to US 195	0.00	0.00	133.53	133.61
SR 26 Spur	SR 26 to US 195	133.44	0.00	133.51	0.07
SR 28	US 2 to SR 281	0.00B	0.00	29.77	33.91
I-82	I-90 to Oregon State Line	0.00	0.00	132.60	132.57
I-90	I-5 to Idaho State Line	1.94	0.00	299.82	297.52
I-90 Reverse Lane	Reversible lane	1.99	0.00	9.44	7.45
SR 96	McCullum Park and Ride to I-5	0.00	0.00	0.52	0.52
US 97	Oregon State Line to SR 22	0.00B	0.00	61.44	61.30
US 97	I-90 to Canadian Border	133.90	118.80	336.48	321.62
US 97 Couplet	Maryhill Couplet	2.59	0.00	2.68	0.09
US 97 Spur	US 97 to US 2 (Orondo)	213.36	0.00	213.62	0.26
US 97 Y	SR 970 to US 97				
SR 99	188th to SeaTac Airport	18.35	14.70	18.77	15.12
SR 99	SR 509 to SR 104	26.04	22.40	43.60	39.84
US 101	Oregon State Line to SR 401	0.00	0.00	0.46	0.46
US 101	SR 4 to I-5	28.89	28.89	367.41	365.78
US 101 Couplet	Aberdeen Couplet	87.49	0.00	91.66	4.17
US 101 Couplet	Port Angeles Couplet	249.65	0.00	251.32	1.67
SR 104	US 101 to I-5	0.20	0.00	29.67	29.14
SR 109	Pacific Beach Access	0.00	0.00	30.25	30.29
SR 125	Oregon State Line to US 12	0.00	0.00	6.09	6.08
SR 125 Spur	SR 125 to US 12	6.09	0.00	6.76	0.67
SR 127	US 12 to SR 26	0.03	0.00	27.05	27.05
SR 128	US 12 to Idaho State Line	0.00	0.00	2.30	2.30

NHS Highways in Washington
Figure 325-2a

State Route	NHS Route Description	Beginning SR MP	Begin ARM	Ending SR MP	End ARM
SR 166	Naval Fuel Depot	0.02	0.00	3.40	3.38
SR 167	I-5 to I-405	0.00	0.00	27.28	28.60
I-182	I-82 to US 395	0.00	0.00	15.19	15.19
US 195	Idaho State Line to I-90	0.00B	0.00	95.99	93.37
US 195 Spur	US 195 to Idaho State Line	0.06	0.00	0.60	0.54
I-205	Oregon State Line to I-5	26.59	0.00	37.16	10.57
SR 240	Hanford Access	30.63	28.86	34.87	33.10
SR 270	US 195 to Idaho	0.00	0.00	9.89	9.89
SR 270	Pullman Couplet	2.67	0.00	2.90	0.23
SR 270	US 195 Y Connection	0.00	0.00	0.38	0.38
SR 281	SR 28 to I-90	0.00	0.00	10.55	10.55
SR 281 Spur	SR 281 to I-90	2.65	0.00	4.34	1.69
SR 303	SR 3 to SR 304	0.00B	0.00	8.73	8.89
SR 304	SR 16 to Bremerton Ferry	0.00	0.00	3.51	3.24
SR 305	SR 3 to Winslow Ferry	0.02	0.00	13.52	13.50
SR 307	SR 305 to SR 104	0.00	0.00	5.25	5.25
SR 310	SR 3 to SR 304	0.00	0.00	1.84	1.84
US 395	Congressional High Priority Route	13.05	13.05	270.26	275.09
SR 401	US 101 to SR 4	0.00	0.00	12.13	12.13
I-405	I-5 to I-5	0.00	0.00	30.32	30.30
SR 432	SR 4 to I-5	0.00	0.00	10.33	10.32
SR 433	Oregon State Line to SR 432	0.00	0.00	0.94	0.94
SR 500	I-5 to SR 503	0.00	0.00	5.96	5.96
SR 501	I-5 to Port of Vancouver	0.00	0.00	3.83	3.42
SR 502	I-5 to SR 503	0.00B	0.00	7.56	7.58
SR 503	SR 500 to SR 502	0.00	0.00	8.09	8.09
SR 509	SR 99 to 12th Place S	24.35B	26.13	29.83	33.11
SR 509	Pacific Ave. to Marine View Drive	0.22	1.44	3.20	4.42
SR 512	I-5 to SR 167	0.00	0.00	12.06	12.06
SR 513	Sandpoint Naval Air Station	0.00	0.00	3.35	3.35
SR 516	I-5 to SR 167	2.03	2.02	4.72	4.99
SR 518	I-5 to SR 509	0.00	0.00	3.81	3.42
SR 519	I-5 to Seattle Ferry Terminal	0.00	0.00	1.14	1.14
SR 520	I-5 to SR 202	0.00	0.00	12.83	12.82
SR 522	I-5 to US 2	0.00	0.00	24.68	24.68
SR 524	Lynnwood Park and Ride to I-5	4.64	4.76	5.20	5.32
SR 524 Spur	Cedar Way Spur - Lynnwood Park and Ride to I-5	4.64	0.00	5.14	0.50
SR 525	I-5 to SR 20	0.00	0.00	30.49	30.72
SR 526	SR 525 to I-5	0.00	0.00	4.52	4.52
SR 529	Everett Homeport	0.00	0.00	2.20	2.20
SR 539	I-5 to Canadian Border	0.00	0.00	15.16	15.16
SR 543	I-5 to Canadian Border	0.00	0.00	1.09	1.09
SR 546	SR 539 to SR 9	0.00	0.00	8.02	8.02
I-705	I-5 to Schuster Parkway	0.00	0.00	1.50	1.50
SR 970	I-90 to US 97	0.00	0.00	10.31	10.31
SR 970 Y	Y connection to US 97	0.00	0.00	0.10	0.10

NHS Highways in Washington
Figure 325-2b

↓ Project Type	Bridges														Barriers						
Design Elements ⇨	Horiz. Align.	Vert. Align.	Lane Width	Shldr Width (13)	On/Off Conn.	Median Width	Cross Slope Lane	Cross Slope Shldr	Fill/Ditch Slopes	Clear Zone	Sign. (10)	Delini. (9)	Illumin.	Vert. Clear. (11)	Bike & Ped.	Lane Width	Shldr Width	Structural Capacity	Term. & Trans. Section (12)	Sid Run	Bridge Rail (14)(19)
(1-1) Preventive Maintenance																					
Pavement Restoration																					
(1-2) Diamond Grinding											EU	F		DE					F	EU	F
(1-3) Milling with HMA Inlays									EU	F	EU	F		DE					F	EU	F
(1-4) Nonstructural Overlay				DE			EU	EU	EU	F	EU	F		EU					F	F	F
Pavement Rehab./Resurf.																					
(1-5) HMA Structural Overlays	EU	DE	F	F	F(17)	DE	F	EU	F	F	EU	F	F	F		F	DE		F	F	F
(1-6) PCCP Overlays	EU	DE	F	F	F(17)	DE	F	EU	F	F	EU	F	F	F		F	DE		F	F	F
(1-7) Dowel Bar Retrofit	EU	DE	F	F	F(17)	DE	DE		F	F	EU	F	F	DE					F	F	F
Bridge Rehabilitation																					
(1-8) Bridge Deck Rehabilitation												F		F		F	DE	(11)	F(6)	F(22)	F
Safety																					
(1-9) Median Barrier				DE																	
(1-10) Guardrail Upgrades				DE						F									F(20)	F	
(1-11) Bridge Rail Upgrades																			F	F(23)	F
Reconstruction (16)																			F	F(22)	F
(1-12) New/Reconstruction	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F

- ☐ Not Applicable
F Full design level. See Chapter 440.
DE Design Exception to full design level.
EU Evaluate Upgrade to full design level.
- (6) Applies only to bridge end terminals and transition sections.
 (9) Continuous shoulder rumble strips required in rural areas. See Chapter 700.
 (10) See Chapter 820.
 (11) See Chapter 1120.
 (12) Impact attenuators are considered as terminals.
 (13) See Chapters 440 and 640.
 (14) Includes crossroad bridge rail. See Chapter 710.
- (16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).
 (17) DE for existing acceleration/deceleration lanes when length meets posted freeway speed and no significant accidents. See Chapter 940.
 (19) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.
 (20) Applies to median elements only.
 (22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.
 (23) See description of Guardrail Upgrades Protect Type 325.03(1) regarding length of need.

Design Matrix 1
Interstate Routes (Main Line)
Figure 325-3

↓ Project Type		Ramps and Collector Distributors												Cross Road												
		Ramp Terminals						Barriers			Barriers															
		Horiz. Align.	Vert. Align.	Lane Width	Shldr Width	Lane Trans. sition	On/Off Conn.	Cross Slope Lane	Cross Slope Shldr	Fill/ Ditch Slopes	Limited Access Zone	Clear. Access Zone	Sign., Del., Illumin. (9)(10)	Vertical Clear. (11)	Bike & Ped.	Turn Radii	Angle	US Sight Dist.	Term. & Trans. Section (12)	Bridge Rail Run (14)(19)						
Design Elements ⇄																							Term. & Trans. Section (12)	Bridge Rail Run (14)(19)		
	(2-1) Preventive Maintenance																									
Pavement Restoration																										
(2-2)	Diamond Grinding												EU	F(15)									F	EU	F	
(2-3)	Milling with HMA Inlays									EU			F	F(15)	F	M							F	F	F	
(2-4)	Nonstructural Overlay							EU	EU	EU		F	F	F(15)	F	M							F	F	F	
Pavement Rehab./Resurf.																										
(2-5)	HMA Structural Overlays	EU	DE	F	F	F	F(17)	F	EU	F	F	F	F	F(15)	F	M	F	F	F	F	F	DE	F	F	F	
(2-6)	PCCP Overlays	EU	DE	F	F	F	F(17)	F	EU	F	F	F	F	F(15)	F	M	F	F	F	F	F	DE	F	F	F	
(2-7)	Dowel Bar Retrofit	DE		DE	DE	F	F(17)	DE		F	F	F	F	F(15)	DE		F	F	F	F			F	F	F	
Bridge Rehabilitation																										
(2-8)	Bridge Deck Rehabilitation														F	M	F(6)	F(22)	F				F	F	F	
Safety																										
(2-9)	Intersection																									
(2-10)	Guardrail Upgrades			E	E	E			E	E	E	E	E	E	M		E	E	E	E	E	E	E	E	E	
(2-11)	Bridge Rail Upgrades				DE						F						F	F(23)	F	F	F	F	F	F	F	
Reconstruction (16)																										
(2-12)	New/Reconstruction	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	

- ☐ Not Applicable
F Full design level. See Chapter 440.
M Modified design level. See Chapter 430.
DE Design Exception to full design level.
EU Evaluate Upgrade to full design level.
- (6) Applies only to bridge end terminals and transition sections.
 (9) Continuous shoulder rumble strips required in rural areas. See Chapter 700.
 (10) See Chapter 820.
 (11) See Chapter 1120.
 (12) Impact attenuators are considered as terminals.
 (14) Includes crossroad bridge rail. See Chapter 710.
 (15) EU for signing and illumination.
- (16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).
 (17) DE for existing acceleration/deceleration lanes when length meets posted freeway speed and no significant accidents. See Chapter 940.
 (19) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.
 (22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.
 (23) See description of Guardrail Upgrades Project Type, 325.03(1), regarding length of need.

Design Matrix 2
Interstate Interchange Areas
Figure 325-4

↕ Project Type		Bridges (11)											Intersections			Barriers											
	Design Elements ↕	Horiz. Align.	Vert. Align.	Lane Width	Shldr Width	Lane Transition	On/Off Conn.	Median Width	Cross Slope Lane	Cross Slope Shldr	Fill/ Ditch Slopes	Access (3)	Clear Zone (18)	Sign., Del., Illumin.	Basic Safety	Bike & Ped.	Lane Width	Shldr Width	Vertical Clearance	Structural Capacity	Turn Radil	Angle	I/S Sight Dist.	Term. & Trans. Section (12)	Std Run	Bridge Rail (14)(19)	
Preservation																											
Roadway																											
	(3-1) Non-Interstate Freeway	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F			B	B		DE/F	DE/F	F							
	(3-2) HMA/PCP/BSST Overlays	DEM	DEM	DEM	DEM	DE/F	DE/F	DEM	DEM	DEM	DEM	DEM			B	B	M	DEM	DEM	F			B	F	B	F	
	(3-3) Replace HMA w/ PCCP at I/S	DEM	DEM	EUM	EUM	DE/F		DEM	EUM	DEM	DEM				B	B	M	DEM	DEM	F			B	F	B	F	
Structures																											
	(3-4) Bridge Replacement	F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F(2)		F	F	F	F	F	F(2)	F(2)	F	F	F(2)	F	F	F	F	
	(3-5) Bridge Deck Rehab.													B	B	M			F				F(6)	F(22)	F		
Improvements (16)																											
Mobility																											
	(3-6) Non-Interstate Freeway	F	F	F	F	F	F	F	F	F	F	F	F	F													
	(3-7) Urban	F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F			F	F(2)	F(2)	F	F	F	F	F	F	F	
	(3-8) Rural	F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F			F	F(2)	F(2)	F	F	F(2)	F	F	F	F	
	(3-9) HOV	F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F			F	F(2)	F(2)	F	F	F(2)	F	F	F	F	
	(3-10) Bike/Ped. Connectivity	(5)	(5)	(5)	(5)	(5)		(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)		F	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	
Safety																											
	(3-11) Non-Interstate Freeway	F	F	F	F	F	F	F	F	F	F	F	F	F			F	F	F	F	F	F	F	F	F	F	
	(3-12) Intersection (1)																										
	(3-13) Corridor (1)(24)	M(4)	M(4)	M(4)	M(4)	F	F(17)	M(4)	M(4)	M(4)	M(4)	F	F	F			M	M(4)	M(4)	F	F	F	F	F	F	F	
	(3-14) Median Barrier					DE/F																					
	(3-15) Guardrail Upgrades					DE/F																					
	(3-16) Bridge Rail Upgrades																										
	(3-17) Risk: Roadside																										
	(3-18) Risk: Sight Distance	FIM(21)	FIM(21)	FIM(21)	FIM(21)						F	EUF	F	F				F(21)	F(21)	F(21)		FIM(21)	FIM(21)	F	F	F	
	(3-19) Risk: Roadway Width	FIM(21)	FIM(21)	FIM(21)	FIM(21)	F(21)	F(21)	FIM(21)	FIM(21)	FIM(21)	FIM(21)	F	F	F			F	F(21)	F(21)	F(21)		FIM(21)	FIM(21)	F	F	F	
	(3-20) Risk: Realignment	F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F			F	F(2)	F(2)	F		F(2)	F(2)	F	F	F	
Economic Development																											
	(3-21) Freight & Goods (Fast Free)(8)	F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F(2)	EUF	F	B		EUF(26)	DE/F	DE/F	F	F	EUF	EUF	EUF	F	F	F	
	(3-22) Four-Lane Trunk System	F	F	F	F	F	F	F	F	F	F	F	F	F			F	F	F	F	F	F	F	F	F	F	
	(3-23) Rest Areas (New)	F	F	F	F	F	F	F	F	F	F	F	F	F			F	F	F	F	F	F	F	F	F	F	
	(3-24) Bridge Restrictions	F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F(2)		F	F		EUF(26)	F	F(2)	F(2)	F	F	F(2)	F(2)	F	F	F	
	(3-25) Bike Routes (Shldrs)					FLUF								B	B	F	EUF	EUF	F			B	B	F	R	FLUF	

- ☐ Not Applicable
F Full design level. See Chapter 440.
M Modified design level. See Chapter 430.
B Basic design level. See Chapter 410.
FIM Full for freeways/Modified for nonfreeway
DE Design Exception
EU Evaluate Upgrade
- (1) Collision Reduction (HAL, HAC, PAL), or Collision Prevention (At-Grade Removal, Signalization & Channelization). Specific deficiencies that created the project must be upgraded to design level as stated in the matrix.
 (2) Modified design level may apply based on a corridor or project analysis. See 325.03(5).
 (3) If designated as L/A acquired in the Access Control Tracking System, limited access requirements apply. If not, managed access applies. See 325.03(5).
 (4) Full design level may apply based on a corridor or project analysis. See 325.03(5).
 (5) For bike/pedestrian design see Chapters 1020 and 1025.
 (6) Applies only to bridge end terminals and transition sections.
 (7) 4 ft minimum shoulders.
 (8) If all weather structure can be achieved with spot digouts and overlay, modified design level applies to NHS highways and basic design level applies to non-NHS highways.
 (11) See Chapter 1120.
 (12) Impact attenuators are considered as terminals.
 (14) Includes crossroad bridge rail. See Chapter 710.
- (16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).
 (17) DE for existing acceleration/deceleration lanes when length meets posted freeway speed and no significant accidents. See Chapter 940.
 (18) On managed access highways within the limits of incorporated cities and towns, City and County Design Standards apply to areas outside the curb or outside the paved shoulder where no curb exists.
 (19) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.
 (20) Applies to median elements only.
 (21) Analyses required. See 325.03(5) for details.
 (22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.
 (23) See description of Guardrail Upgrades Project Type, 325.03(1) regarding length of need.
 (24) Apply Full design level to projects that realign or reconstruct significant portions of the alignment.
 (26) Sidewalk ramps must be addressed for ADA compliance. See Chapter 1025.

Design Matrix 3

Main Line NHS Routes (Except Interstate)

Figure 325-5

↕ Project Type	Ramps and Collector Distributors																Cross Road											
	Ramp Terminals																Barriers		Barriers									
	Horiz. Align.	Vert. Align.	Lane Width	Shldr Width	Lane Trans- sition	On/Off Conn.	Cross Slope Lane	Cross Slope Shldr	Fill/ Ditch Slopes	Access (3)	Clear Zone	Sign., Del. Illumin.	Basic Safety	Bike & Ped.	Turn Radii	Angle	I/S Sight Dist	Term. & Trans. Section (12)	Bridge Rail (14)(19)	Term. & Trans. Section (12)	Per. & Clear. Bike	Vert. Clear. (11)	Sign., Del. Illumin.	Basic Safety				
Design Elements ⇨																												
Preservation																												
Roadway																												
	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF	DEF	B	B	B	M	DEF	DEF	DEF	B	F	DE/F	DE/F							

- ☐ Not Applicable
F Full design level. See Chapter 440.
M Modified design level. See Chapter 430.
B Basic design level. See Chapter 410.
F/M Full for freeways/Modified for nonfreeway
DE Design Exception
EU Evaluate Upgrade
- (1) Collision Reduction (HAL, HAC, PAL), or Collision Prevention (AT-Grade Removal, Signalization & Channelization). Specific deficiencies that created the project must be upgraded to design level as stated in the matrix.
 (2) Modified design level may apply based on a corridor or project analysis. See 325.03(5).
 (3) If designated as L/A acquired in the Access Control Tracking System, limited access requirements apply. If not, managed access applies. See 325.03(5).
 (4) Full design level may apply based on a corridor or project analysis. See 325.03(5).
 (5) For bike/pedestrian design see Chapters 1020 and 1025.
 (6) Applies only to bridge end terminals and transition sections.
 (11) See Chapter 1120.
 (12) Impact attenuators are considered as terminals.
- (14) Includes crossroad bridge rail. See Chapter 710.
 (16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).
 (19) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.
 (21) Analyses required. See 325.03(5) for details.
 (22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.
 (23) See description of Guardrail Upgrades Project Type, 325.03(1) regarding length of need.
 (25) For main line, use the Project Type row for Safety, Non-Interstate Freeway on Matrix 3 for NHS and on Matrix 5 for non-NHS.

Design Matrix 4
Interchange Areas, NHS (Except Interstate) and Non-NHS
Figure 325-6

↕ Project Type		Bridges (11)															Intersections		Barriers					
		Horiz. Align.	Lane Width	Shldr Width	Lane Trans- sition	Median Width	Cross Slope Lane	Cross Slope Shldr	Fill/ Ditch Slopes	Access (3)	Clear Zone (18)	Sign, Del., Illumin.	Basic Safety	Bike & Ped.	Lane Width	Shldr Width	Vertical Clear.	Structural Capacity	Turn Radii	Angle	I/S Sight Dist.	Term. & Trans. Section (12)	Sld Run	Bridge Rail (19)
Design Elements ↗																								
Preservation																								
Roadway																								
(5-1) HMA/PCCP												B	B	M			F				B	F	B	F
(5-2) BST																								
(5-3) BST Routes/Basic Safety												B	B								B	F	B	F
(5-4) Replace HMA with PCCP at I/S												B	B	M			F					F	B	F
Structures																								
(5-5) Bridge Replacement		M	F	M	F		M	M			F	F		F	F(2)	F(2)	F	F		M	M	F	F	F
(5-6) Bridge Repl. (Multilane)		F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)		F	F		F	F(2)	F(2)	F	F		F(2)	F	F	F	F
(5-7) Bridge Deck Rehab												B	B	M								F(6)	F(22)	F
Improvements (16)																								
Mobility																								
(5-8) Urban (Multilane)		F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	(2)	F	F	F		F	F(2)	F(2)	F	F		EU/F	EU/F	F	F	F
(5-9) Urban		M	M	M	F		M	M	M	F	F	F		F	M	M	F	F		EU/M	EU/M	F	F	F
(5-10) Rural		M	M	M	M	M	M	M	M	F	F	F		F	M	M	F	F		EU/M	EU/M	F	F	F
(5-11) HOV		M	M	M	F	M	M	M	M	F	F	F		F	M	M	F	F		EU/M	EU/M	F	F	F
(5-12) Bike/Ped. Connectivity		(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)		F	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Safety																								
(5-13) Non-Interstate Freeway		F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F		F	F(2)	F(2)	F			F(2)	F(2)	F	F	F
(5-14) Intersection (1)			M(4)	M(4)	F		M(4)	M(4)	M(4)	F	F	F		M	M(4)	M(4)	F			M(4)	M(4)	F	F	F
(5-15) Corridor (1)		M(4)	M(4)	M(4)	F	M(4)	M(4)	M(4)	M(4)	F	F	F		M	M(4)	M(4)	F			M(4)	M(4)	F	F	F
(5-16) Median Barrier				DE/F																		F(20)	F(20)	
(5-17) Guardrail Upgrades				DE/F																		F	F(23)	
(5-18) Bridge Rail Upgrades																						F	F(22)	F
(5-19) Risk: Roadside									M(4)	EU/F	F	F										F	F	F
(5-20) Risk: Sight Distance		FIM(21)	FIM(21)	FIM(21)					FIM(21)	F(21)	F(21)	F		F	F(21)	F(21)	F(21)	F(21)		FIM(21)	FIM(21)	F(21)	F	F
(5-21) Risk: Roadway Width				F	F	FIM(21)	FIM(21)	FIM(21)	FIM(21)	E	F	F		F	F(21)	F(21)	F(21)	F(21)		FIM(21)	FIM(21)	F(21)	F	F
(5-22) Risk: Realignment		F/M	F/M	F/M	F	F/M	F(2)	F(2)	F/M	F	F	F		F	F(21)	F(21)	F(21)	F(21)		FIM(21)	FIM(21)	F	F	F
Economic Development																								
(5-23) Freight & Goods (Frost Free) (8)		EU/M	EU/M	EU/M	EU/F	EU/M	M	M	EU/M		F	B	B	EU/F(26)	DE/M	DE/M	F			EU/M	EU/M	EU/F	F	B
(5-24) Rest Areas (New)		F	F	F	F	F	F	F	F	F	F	F		F	F	F				F	F	F	F	F
(5-25) Bridge Restrictions		M	F	M	M	M	M	M	M		F	F		EU/F(26)	M	M	F	F		M	M	F	F	F
(5-26) Bike Routes (Shldrs)				EU/M	(7)	EU/F		EU/M	EU/M			B	B	F	EU/M	EU/M					B	F	R	EU/F

- ☐ Not Applicable
F Full design level. See Chapter 440.
M Modified design level. See Chapter 430.
F/M Full for freeways/Modified for nonfreeway
B Basic design level. See Chapter 410.
DE Design Exception
EU Evaluate Upgrade
- (1) Collision Reduction (HAL, HAC, PAL) or Collision Prevention (At Grade Removal, Signalization & Channelization). Specific deficiencies that created the project must be upgraded to design level as stated in the matrix.
(2) Modified design level may apply based on a corridor or project analysis. See 325.03(5).
(3) If designated as LIA acquired in the Access Control Tracking System, limited access requirements apply. If not, managed access applies. See 325.03(5).
(4) Full design level may apply based on a corridor or project analysis. See 325.03(5).
(5) For bike/pedestrian design see Chapters 1020 and 1025.
(6) Applies only to bridge end terminals and transition sections.
(7) 4 ft minimum shoulders.
(8) If all weather structure can be achieved with spot digouts and overlay, modified design level applies to NHS highways and basic design level applies to non-NHS highways.
- (11) See Chapter 1120.
(12) Impact attenuators are considered as terminals.
(16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).
(18) On managed access highways within the limits of incorporated cities and towns, City and County Design Standards apply to areas outside the curb or outside the paved shoulder where no curb exists.
(19) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.
(20) Applies to median elements only.
(21) Analyses required. See 325.03(5) for details.
(22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.
(23) See description of Guardrail Upgrades Project Type, 325.03(1) regarding length of need.
(26) Sidewalk ramps must be addressed for ADA compliance. See Chapter 1025.

Design Matrix 5

Main Line Non-NHS Routes

Figure 325-7